

## ABSTRACT OF THE DISCLOSURE

A process for the reliable operation of turbocompressors with a surge limit control and a surge limit control valve is described, in which the compressor delivers gases with different compositions and the composition of the gas (molecular weight) affects the performance characteristic of the turbocompressor and hence the position of the surge limit in the performance characteristic. The different compositions of the gases are compensated here with the effect on the position of the surge limit and consequently on the position of the surge limit control line by using predetermined design values for the gas constant  $R$ , the isentropic exponent  $k$  and the compressibility number  $z$  within the surge limit control for the determination of the delivery head  $\Delta h$  and the volume flow  $V$  and plotting them in the form of a predetermined surge limit line (Figure 2, Figure 4), wherein the set point and the actual value are determined for the surge limit control from the graph, and the compressor is operated with the set points and actual values determined for the surge limit control with a minimally necessary distance from the surge limit.